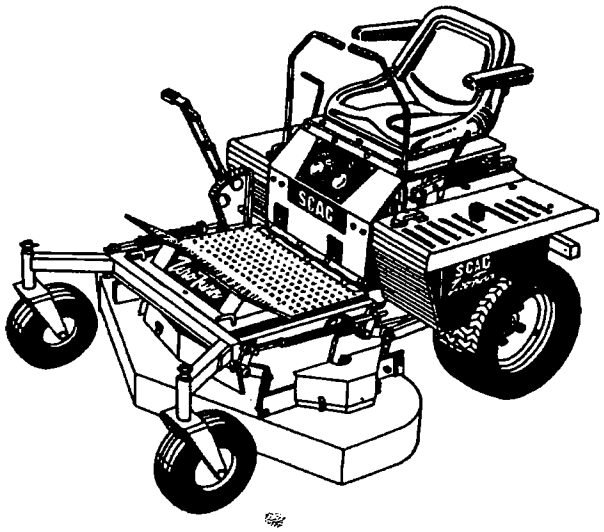
SCAG®

HYDROSTATIC DRIVE COMMERCIAL MOWERS TECHNICAL MANUAL



MODELS

STZ52-18KH

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SCAG POWER EQUIPMENT, INC.
SUBSIDIARY OF METALCRAFT OF MAYVILLE

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Your mower was built to the highest standards in the industry. However, your mower is only as safe as the operator. Carelessness or error on the part of the operator may result in serious bodily injury. Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment. Make sure every operator is properly trained and thoroughly familiar with all of the controls before operating the equipment.

SAFETY INSTRUCTIONS

1. Know the controls and how to stop quickly. READ THIS TECHNICAL MANUAL and instructions furnished with attachments. A replacement manual is available by sending complete model and serial number to:
   SCAG Power Equipment, Inc.
   1000 Metalcraft Drive
   Mayville, WI 53050
2. Do not allow children to operate the machine. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. Do not mow when children and others are around.
4. Clear the work area of objects (wires, rocks, etc.) that might be picked up and thrown.
5. Disengage all attachment clutches and engage parking brake before attempting to start the engine.
6. Disengage power to attachments and engage parking brake before leaving the operator's position.
7. Disengage power to attachments, stop the engine and remove key before making any repairs or adjustments.
8. Disengage power to attachments when transporting or not in use.
9. Take all possible precautions when leaving the vehicle unattended, such as disengaging power to attachments, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
10. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
11. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.
12. Stay alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from drop-offs.
13. Use care when pulling loads or using heavy equipment.
    a. Use only approved drawbar hitch points.
    b. Limit loads to those you can safely control.
    c. Do not turn sharply. Use care when backing.
    d. Use counterweights or wheel weights when suggested in this technical manual.
14. Watch out for traffic when crossing or near roadways.
15. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the mower while in operation.
16. Handle gasoline with care - it is highly flammable.
    a. Use approved gasoline container.
    b. Never remove the fuel cap of, or add gasoline to, a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gas.
    c. Open doors if the engine is run in the garage - exhaust fumes are dangerous. Do not run the engine indoors.
17. Keep the mower and attachments in good operating condition, and keep safety devices and shields in place and in working condition.
18. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
19. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

SAFETY INSTRUCTIONS CONT'D

20. To reduce fire hazard, keep the engine free of grass, leaves or excessive lubricants.
21. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.
22. Do not change the engine governor settings or overspeed the engine.
23. When using the machine with mower, proceed as follows:
    a. Mow only in daylight or in good artificial light.
    b. Never make a cutting height adjustment while the engine is running if the operator must dismount to do so.
    c. Shut the engine off and remove key when removing the grass catcher or unclogging chute.
    d. Check the blade mounting bolts for proper tightness at frequent intervals.
24. Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.
25. Disengage power to mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.
26. The discharge chute must be installed and in the down position on the side discharge mower; except when optional grass catcher is completely installed. If the mower discharge ever plugs, shut engine off and wait for all movement to stop before removing obstruction.
27. Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Scag Servicing Dealer. To ensure optimum performance and safety, always purchase genuine SCAG replacement parts and accessories. NEVER USE "WILL FIT" replacement parts and accessories made by another manufacturer. Use of unapproved replacement parts may void the warranty.

⚠ WARNING

Do not operate on steep slopes. To check a slope, attempt to back up (with cutter deck down). If unit can back up the slope without the wheels slipping then slope should be managable with careful operating procedures.

HYDRAULIC SAFETY

- Safely relieve all pressure in the system before disconnecting the lines or performing work on the system.
- Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard and not hands to search for leaks.
- Hydraulic fluid escaping under high pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the the skin, it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
- Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.

SETUP INSTRUCTIONS

1. Remove all crating and packing materials. Layout loose mounting hardware according to the "Where Used" as listed in the loose parts packing list.

⚠ **WARNING:** Severe chemical burns can result from improper handling of battery electrolyte. Use proper eye, skin and clothing protection to prevent contact with eyes, skin and clothing.
External contact: Flush with water.
Internal contact: Drink large quantities of water, followed with milk of magnesia, beaten egg or vegetable oil. CALL A PHYSICIAN IMMEDIATELY!
IMPORTANT - In case of internal contact DO NOT give fluids that would induce vomiting.
Eye contact: Flush with water for at least 15 minutes and get medical attention immediately!

⚠ **WARNING:** Explosive gases are vented from a battery when being charged or discharged which could explode if exposed to a flame or spark.

2. Remove battery from the unit.
Fill with electrolyte solution.
Charge at 3 to 5 amps for about 2 hours.
Check fluid level and add electrolyte until level is up to the bottom of the split ring.
NOTE: *Future need to adjust fluid level requires distilled water.*
Wash and dry off battery. Coat terminals with grease to minimize corrosion.

3. Mount drive tires using lug nuts located on the hubs.

4. Attach the seat assembly and seat brace support to the seat base using four 5/16-18 x 3/4" bolts and 5/16" lock washers.

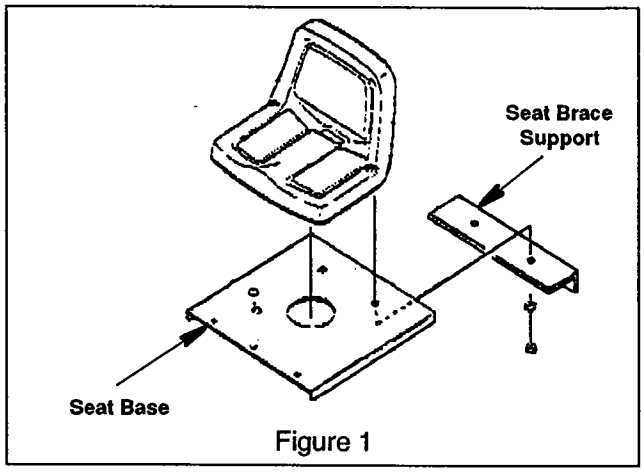


Figure 1

5. Remove cable tie holding seat safety switch to engine and mount safety switch to underside of seat using two 1/4-20 x 1/2" socket head screws and 1/4" lockwashers.

Note: Machine will not operate without switch properly mounted and connected.

6. Attach arm rests to seat back and use setscrews to adjust arm rests so they are horizontal.

7. Mount RH and LH hand control handles using 5/16-18 x 1-1/2" hex head bolt and 5/16-18 elastic stop nut. Bolt needs to be installed from the front, nut towards rear of unit. Do not overtighten bolt to the point where the hand control handles will not move freely.

8. Attach neutral lock bracket using two 5/16-18 x 3/4" hex head bolts, 5/16 lockwashers and neutral lock bars.

⚠ **WARNING:** Do not operate machine without cutter deck properly mounted.

SETUP INSTRUCTIONS CONTINUED

9. Check that cutter deck push arms are set for the same distance. There should be approximately 1-1/2" from end of arm to center of ball joint (See figure 2). Both **must** be the same distance.

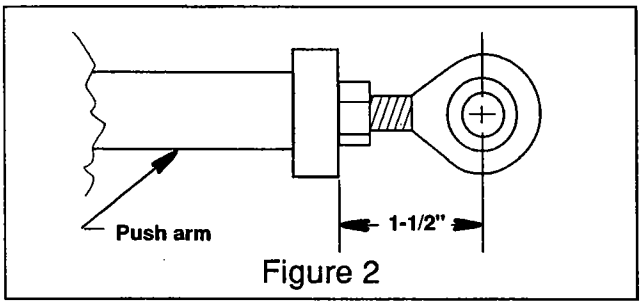


Figure 2

10. Roll cutter deck underneath the cutter deck mounting frame.

11. Attach push arms to cutter deck by lining up the holes and sliding the shaft through the arm (See figure 3). Secure with 5/16-18 x 1" hex head bolt.

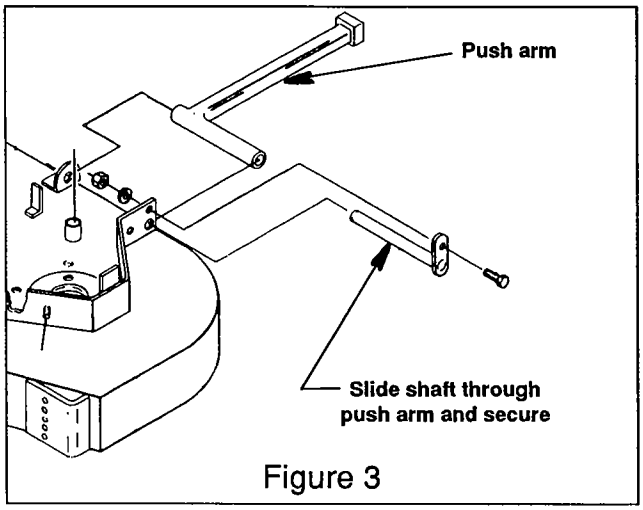


Figure 3

12. Mount cutter deck to chains using four 3/8-16 x 1-1/2" hex head bolts, 3/8" lockwashers and eight 3/8-16 hex nuts. Mount front chains in center mounting holes.

13. Route the blade drive belt around the engine pulley and the cutter deck pulleys.

14. Install the mower engagement control rod to the bellcrank located by the left drive tire and then connect to the over-center mechanism on the cutter deck. Secure with hair pins.

15. Push the mower engagement lever forward until the over-center mechanism snaps into place. Check the over-center spacing (See figure 4).

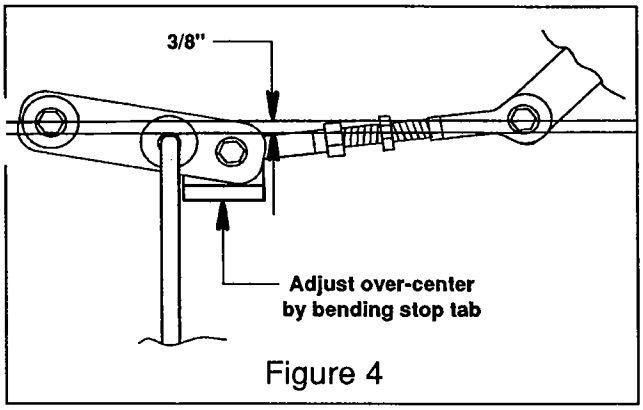


Figure 4

16. Turn nut on cutter deck level adjustment until it bottoms out (See figure 5).

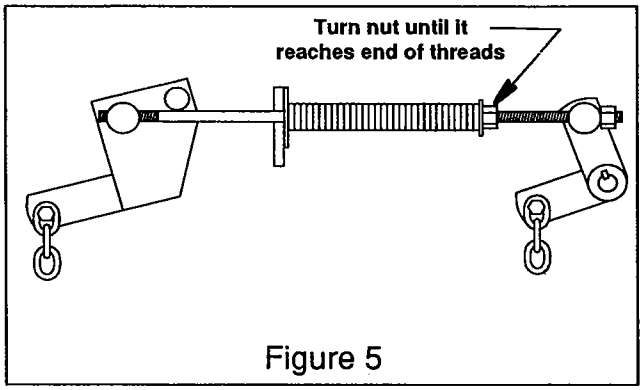


Figure 5

17. Before going on to next step, check that tire pressures are correct. The drive tires should be at 12-14 psi and the caster tires should be at 25 psi. Each set of tires should be set equal.

18. Pull cutter deck height lever all the way back into the last notch.

SETUP INSTRUCTIONS CONTINUED

19. With unit setting on a flat level surface, go to discharge side of cutter deck and measure the distance from the rear bottom edge of the cutter deck to the ground.

20. On the same side of the cutter deck, measure the distance from the front bottom edge of the cutter deck to the ground. The front edge of the cutter deck should be 1/4" lower than the rear. To make this adjustment, take a vice grips and rotate the adjustment rod (See figure 6).

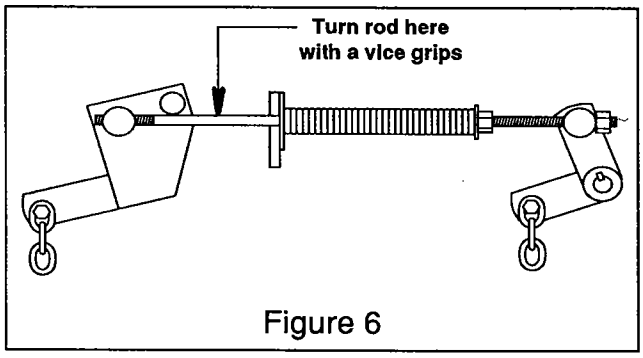


Figure 6

21. On the trim side of the cutter deck, measure the distance from the front bottom edge of the cutter deck to the ground. If this measurement is not the same as the one taken on the discharge side, adjust by relocating the chain mounting either in the upper or the lower hole.

22. On the trim side of the cutter deck, take the slack out of the rear mounting chain by using a vice grips and turning the adjustment rod (See figure 7). The front of the cutter deck should be 1/4" lower than the rear.

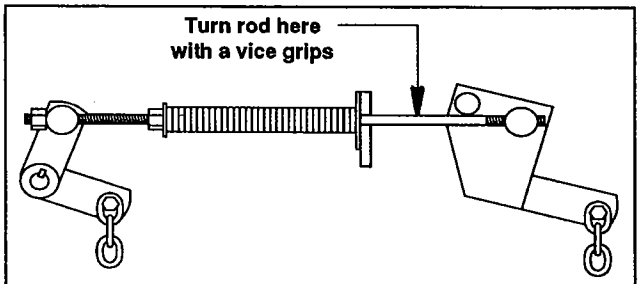


Figure 7

23. The anti-scalp wheels are set in the top mounting holes for packaging purposes. Adjust them to desired height.

24. Attach the discharge chute to the cutter deck using two 5/16-18 x 1" bolts and elastic stop nuts. Tighten only enough to remove excessive end play. Discharge chute must be free to move up and down.

25. Install battery into the battery support, connect the positive cable to the positive terminal and cover with the boot, then attach the negative cable.

26. Check engine oil level, add as necessary (unit was filled with 10W30 motor oil at the factory).

27. Check hydrostatic oil reservoir, oil should be up to line on dipstick. !DO NOT OVER FILL! **Add SAE 10W30 motor oil if necessary.**

28. Check machine to make sure all bolts are properly tightened.

29. Fill fuel tank with gasoline.

30. Open shut-off valve under tank.

ADJUSTMENTS

Neutral Adjustment

1. Set the engine deck up on jack stands, so the drive wheels are free to rotate. Block caster wheels to prevent an accident should the unit fall off the jack stands.

2. Start engine and determine if the drive wheels rotate.

NOTE: *If hydraulic components (pumps, motors, hoses, etc.) are replaced, all air* ***must*** *be bled from system prior to going to step 3.*

To bleed the system at this point, run machine at about 2000 rpm for about 15 seconds at full forward and about 15 seconds at full reverse.

3. Adjust each drive wheel separately by using the turnbuckles located under the operator seat and above each of the pumps.

4. Loosen jam nut on turnbuckle (See figure 8).

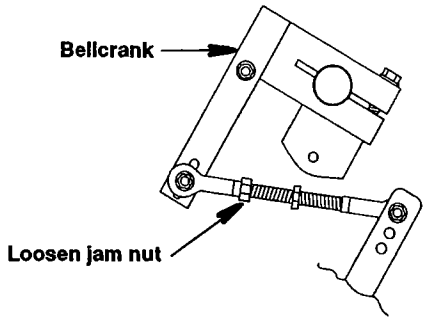


Figure 8

5. If drive wheel is rotating forward, adjust the turnbuckle clockwise. If drive wheel is rotating rearward, adjust the turnbuckle counterclockwise. Adjust until the drive wheel stops rotating (See figure 9).

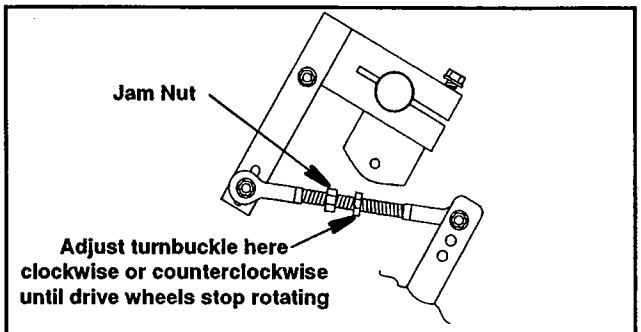


Figure 9

6. Tighten jam nut to secure neutral position (See figure 10).

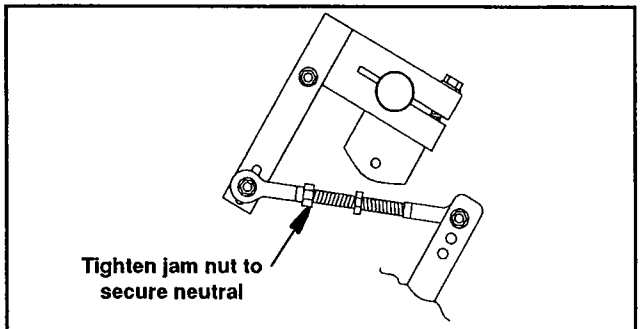


Figure 10

7. Adjust other drive wheel if necessary.

8. Actuate hand control levers forward and reverse. Allow levers to self center and check that neutral is maintained.

ADJUSTMENTS CONT'D

Hand Control Handle Adjustment

1. Loosen bolt securing bellcrank to the shaft of the control lever (See figure 11), permitting bellcrank to rotate on shaft (both sides).

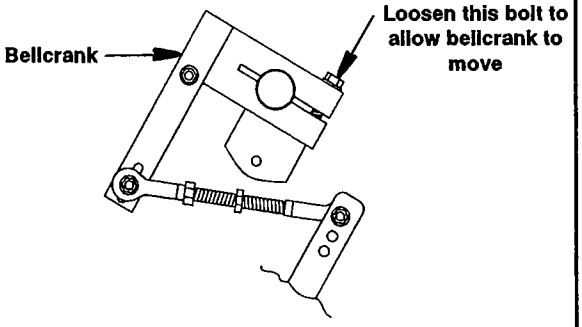


Figure 11

2. Loosen the (2) two bolts anchoring the neutral lock bracket to the fender (both sides).

3. Move neutral lock brackets towards front or back to align the hand control handles.

4. Tighten the bolts on the neutral lock brackets.

5. Tighten bolt securing bellcrank to shaft of the control lever.

6. Readjust neutral if necessary. See page 7 for neutral adjustment

Straight Line Running Adjustment

1. First check for equal drive wheel tire pressure.

   NOTE: The right side pump has a fixed speed and cannot be adjusted, so this adjustment must be done on the left side pump.

2. Locate turnbuckle for left side pump under the operator seat and above the left side pump.

3. Loosen nut securing turnbuckle to bellcrank (See figure 12).

4. Adjust position of turnbuckle by moving it in the mounting slot either up to slow down left wheel or down to speed up left wheel. Secure turnbuckle by tightening nut.

5. Readjust neutral if necessary. See page 7 for neutral adjustment.

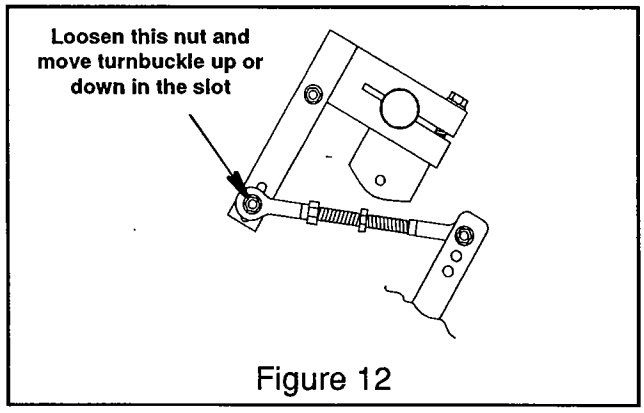
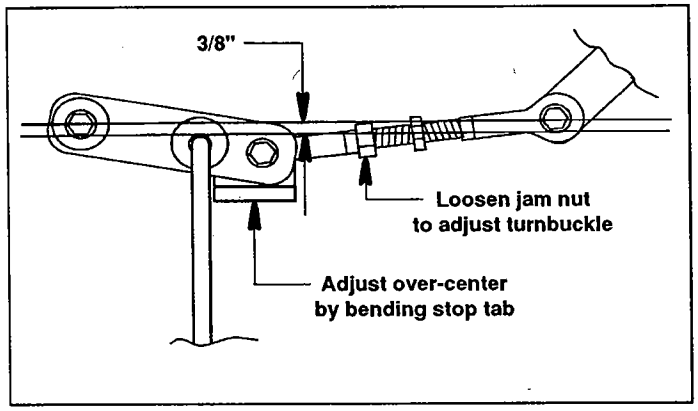


Figure 12

ADJUSTMENTS CONT'D

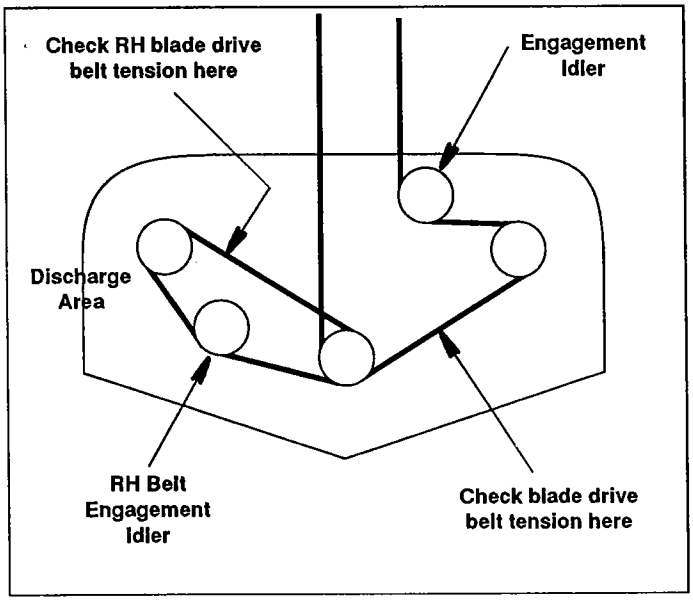
Over-Center Spacing

Engage blade clutch lever to snap over-center mechanism into place. There should be 3/8" between clutch rod and a straight edge. Bend the stop tab to adjust clearance.



Cutter Deck Drive Belt

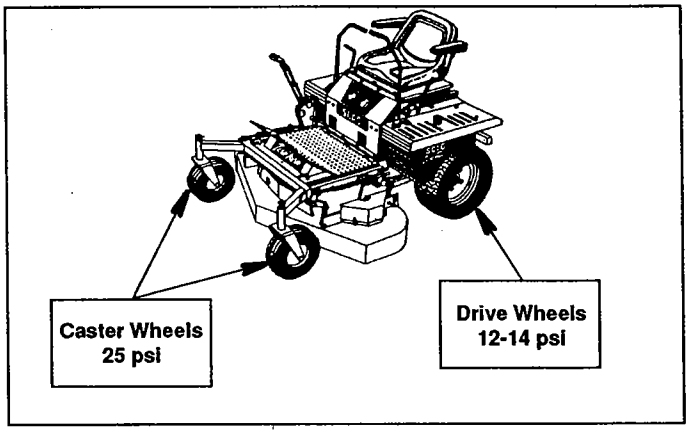
Belt tension should not be adjusted until over-center spacing is checked. Adjust the belt tension so that the belt moves 1/2" with 10 pounds of pressure. Adjustment is made by loosening the jam nut and lengthen or shorten the turnbuckle.


Check RH blade drive belt tension here
Engagement Idler
Discharge Area
RH Belt Engagement Idler
Check blade drive belt tension here

Right Hand Blade Drive Belt

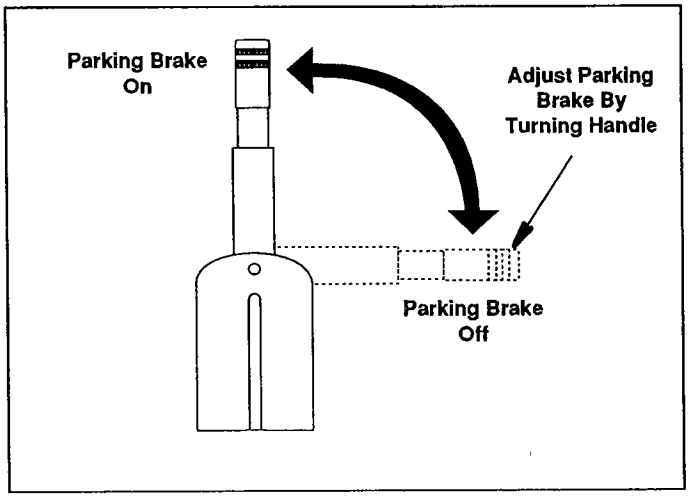
Adjust the belt tension so that the belt moves 1/2" with 10 lbs. of pressure. Adjust tension by tightening or loosening the "J"-bolt.

Tire Pressures



Parking Brake

With parking brake in the off position, turn the handle clockwise to tighten the brakes or turn the handle counter clockwise to loosen the brakes. The brakes should be adjusted so that the drive wheels lock when the brake is on rather than "roll".

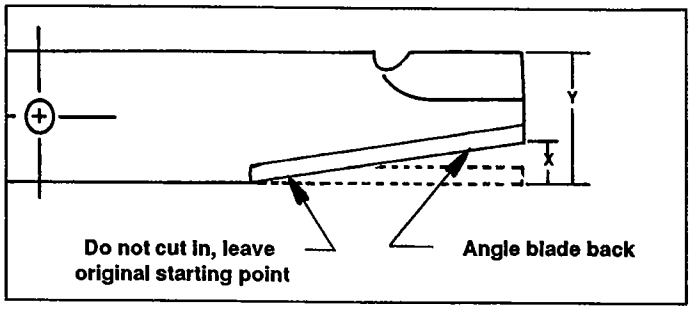


INITIAL RUN, INSPECTION AND OPERATING INSTRUCTIONS

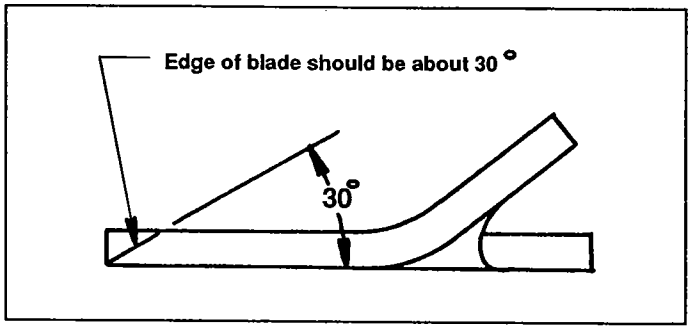
1. Check for correct routing of belts and for correct clearance of belt guides.
2. Check for correct alignment and initial tension of cutter blade drive belts.
3. Check that all fasteners are correctly tightened.
4. Check oil levels in engine and hydraulic reservoir.
5. Fill fuel tank with clean fresh lead free gasoline.
6. To start engine:
   Pull mower engagement lever to off position.
   Put parking brake in engaged position.
   Adjust throttle and choke as required.
   Turn ignition key to start.
7. Release the parking brake. Push mower engagement lever forward until over-center snaps into the engaged position. Allow belts to run-in for 5 minutes.
8. Release the parking brake. Observe to see that the unit does not creep forward or backwards. If it does creep, adjust hydro neutral control as specified in adjustment section.
9. Operate the unit forwards and backwards. Check that all systems function correctly.
10. Shut off engine and recheck cutter deck drive belts for proper tension, and any signs of rubbing. Correct and adjust as necessary.

MAINTENANCE

Cutter Blades



Do not sharpen (X) beyond 1/3 of the width (Y) of the blade.



Suggestion: Dress the blade with a file. Using a wheel grinder may burn the blade.

Freewheel Position

To move machine around without having the engine running, rotate dump valve lever located on the left hand side of each pump approximately 1/2 turn counterclockwise. **Lever must be returned to original position in order to operate machine.**

LUBRICATION & MAINTENANCE

Break-In	8 Hours (Daily)	40 Hours (Weekly)	100 Hours (Biweekly)	200 Hours (Monthly)	PROCEDURE	COMMENTS
X					Check all hardware for proper tightness	
X					**Change engine oil and filter at 5 hours**	
X					**Change oil and filter at 20 hours**	Fill to dipstick fill mark - SAE 10W30
	X				Check engine oil	Do not over fill
	X				Clean blower screen	MORE OFTEN IF NEEDED
	X				Remove debris from under belt cover	" " " "
	X				Sharpen cutter blades	" " " "
	*				Grease spindle bearings 2 pumps of hand gun	+ US Lithium MP White Grease 2125
	X				Clean air filter	MORE OFTEN IF NEEDED
		X			Check battery acid level	Distilled water only
		X			Check tire pressure	Add or adjust as required
		X			Change engine oil	See engine mfg. information
			X		Replace air filter - qualify	MORE OFTEN IF NEEDED
			X		Grease caster wheel bearings	Chassis grease
			X		Grease caster wheel pivots	Chassis grease
			X		Grease idler arm pivots	Chassis grease
			X		Grease cutter deck frame pivots	Chassis grease
				X	Check all hardware for proper tightness	
				X	Change engine oil filter	See engine mfg. information
				X	Check hydro fluid resevoir level	Adjust as needed - SAE 10W30
				X	Clean and Adjust spark plugs	See engine mfg. information
				X	Grease all grease fittings	Chassis grease
					Every 500 Hours	
					Drain Hydraulic System and replace fluid	Use SAE 10W30 motor oil
					Change hydrostatic oil filter	Clean area before removing filter

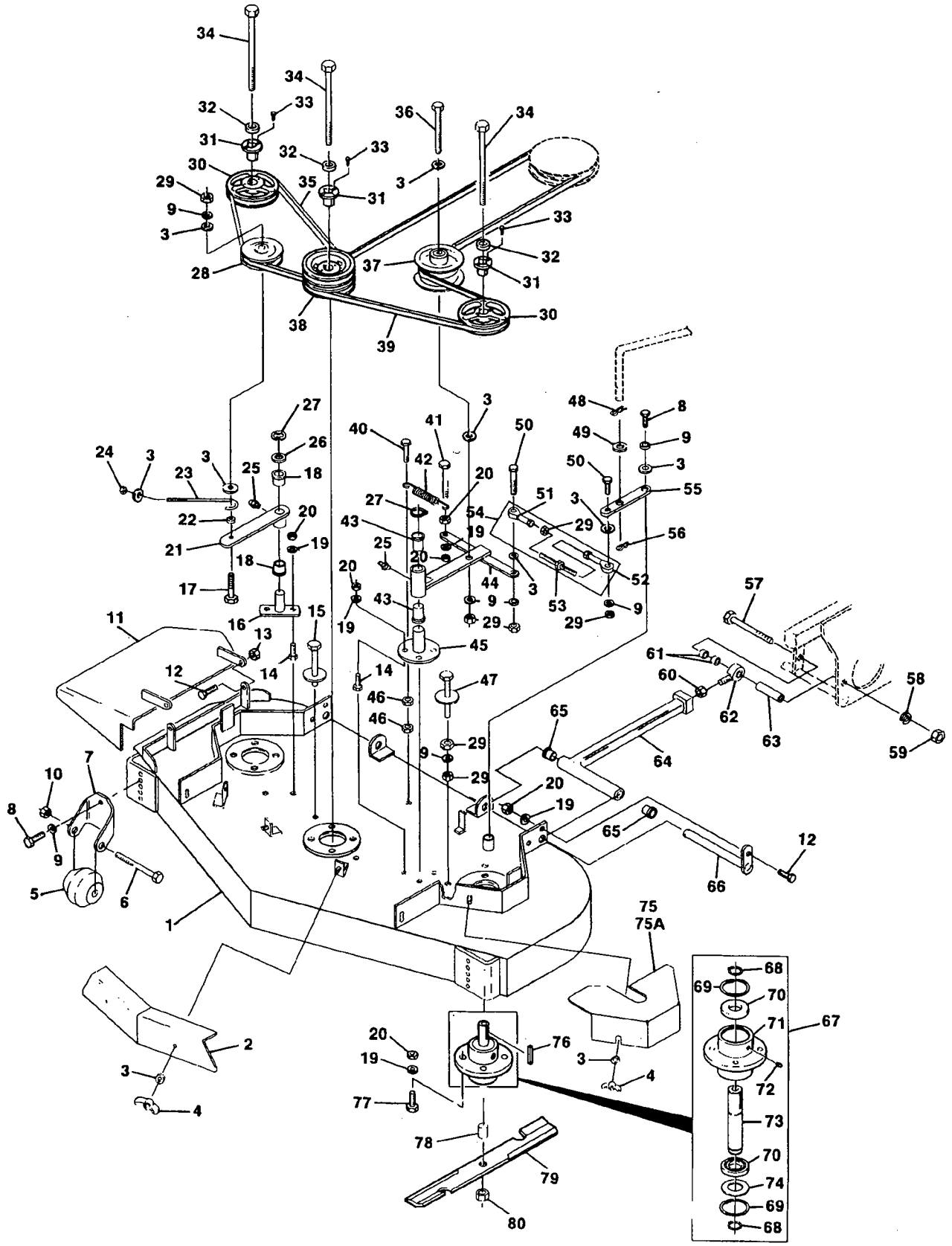
* Depending on climate and enviroment, lubrication may be required every 8 to 40 hours.

* Do not over grease as this may damage seal.

\+ Compatible Greases:

Lidok EP #2 found at Industrial Shops
Ronex MP found at Exxon Service Stations
Shell Alvania found at Shell Service Stations
Mobilux #2 found at Mobil Service Stations
Super Lube M EP #2 and Super Lube-M #2 found at Conoco Service Stations

SMZ-52 CUTTER DECK

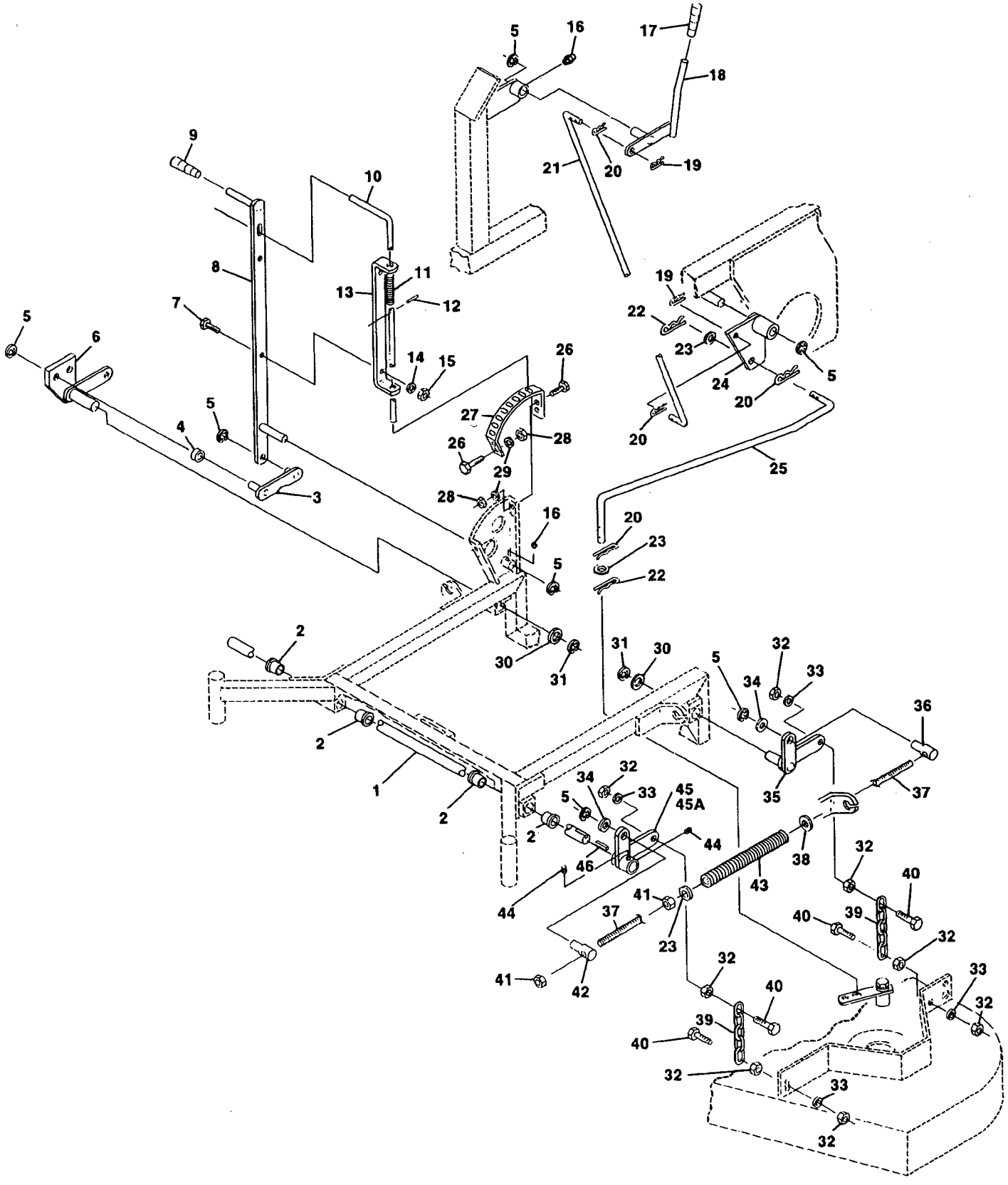


SMZ-52 CUTTER DECK

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	45326	Cutter Deck	42	48052	Spring, Idler Tension
2	42891	Belt Cover - Front	43	48100-02	Bushing
3	*	Flat Washer, 3/8	44	46387	Idler Arm (Includes bushings & grease ftg.)
4	04022-04	Wing Nut, 3/8-16 Elastic Stop	45	45329	Idler Pivot Base
5	48584	Anti-Scalp Wheel	46	*	Hex Nut, 1/4-20
6	*	Hex Head Bolt, 5/8-11 x 4-1/2	47	45351	Belt Guide
7	42882	Anti-Scalp Wheel Bracket	48	*	Cotter Pin, 3/32 x 1
8	*	Hex Head Bolt, 3/8-16 x 1	49	*	Flat Washer, 1/2
9	*	Lockwasher, 3/8	50	*	Hex Head Bolt, 3/8-16 x 1-1/4
10	*	Hex Nut, 5/8-11 Elastic Stop	51	48464	Ball Joint - RH (silver)
11	45331	Discharge Chute	52	48544	Ball Joint - LH (gold)
12	*	Hex Head Bolt, 5/16-18 x 1	53	48590	Link, Turnbuckle
13	*	Hex Nut, 5/16-18 Elastic Stop	54	46388	Turnbuckle Assembly
14	*	Hex Head Bolt, 5/16-18 x 3/4	55	42883	Declutch Link, Cutter Engagement
15	48350	Belt Guide	56	04062-01	Hair Pin, 1/8" Dia.
16	45037	Idler Pivot Base	57	*	Hex Head Bolt, 1/2-13 x 5-1/2
17	*	Hex Head Bolt, 3/8-16 x 2-1/4	58	*	Lockwasher, 1/2
18	48100-05	Bushing	59	*	Hex Nut, 1/2-13
19	*	Lockwasher, 5/16	60	*	Hex Nut, 1/2-20
20	*	Hex Nut, 5/16-18	61	43041	Spacer
21	46081	Idler Arm (Includes bushings & grease ftg.)	62	48542	Ball Joint
22	43077	Spacer	63	43193	Spacer
23	43028	"J" Rod	64	46389	Push Arm (Includes bushings)
24	*	Hex Nut, 3/8-16 Elastic Stop	65	48100-06	Bushing
25	48114-04	Grease Fitting	66	45332	Push Arm Shaft
26	04041-08S	Flat Washer, 3/4 Special	67	46020	Cutter Spindle Assembly (Includes 68-74)
27	04050-02	Retaining Ring, 3/4 External "E"	68	04050-04	Retaining Ring, 1" External Inverted
28	48181	Pulley, Idler	69	04050-07	Retaining Ring, 2-7/16" Internal Basic
29	*	Hex Nut, 3/8-16	70	48101-02	Bearing, Cutter Spindle
30	48127	Pulley (Includes items 31 & 33)	71	41001	Spindle Housing
31	48141	Tapered Hub	72	48114-02	Grease Fitting
32	43038	Spacer	73	43001-02	Spindle Shaft
33	*	Hex Head Bolt, 1/4-20 x 3/4	74	04041-02	Washer, 1-5/16 x 2-7/16 x 16 ga.
34	04004-41	Hex Head Bolt, 5/8-11 x 9-1/2	75	42890	Belt Cover - RH
35	48285	Belt, RH Blade Drive	75a	42889	Belt Cover - LH
36	*	Hex Head Bolt, 3/8-16 x 3-1/2	76	04063-08	Key, 1/4 x 1/4 x 2
37	48550	Pulley, Idler - Cutter Engagement	77	*	Hex Head Bolt, 5/16-18 x 1-1/4
38	48412	Pulley, Double	78	43189	Spacer
39	48296	Belt, Blade Drive	79	48108	Cutter Blade
40	*	Hex Head Bolt, 1/4-20 x 1-1/4	80	*	Hex Nut, 5/8-11
41	*	Hex Head Bolt, 5/16-18 x 4			

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

CUTTER DECK CONTROLS

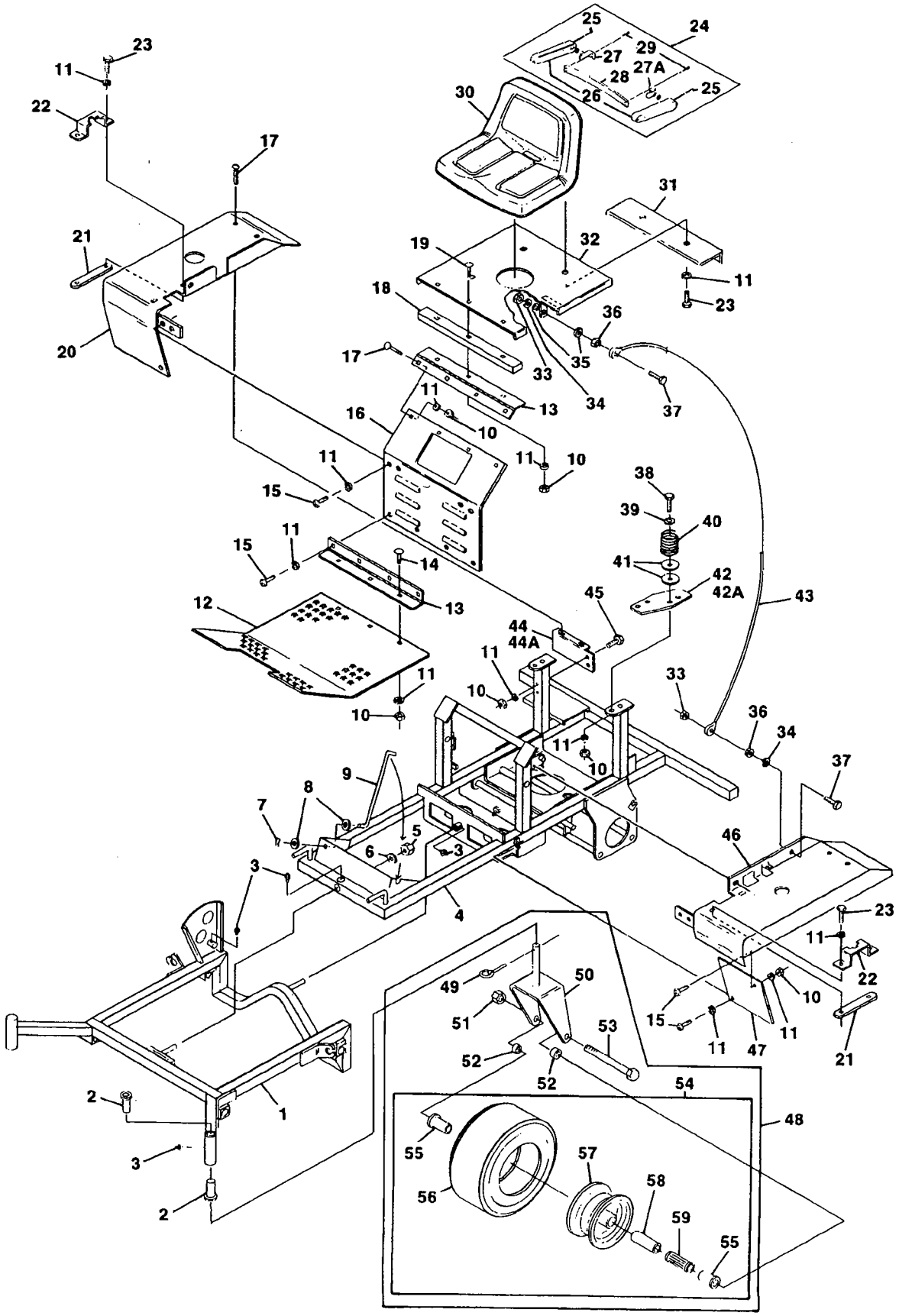


CUTTER DECK CONTROLS

Ref. No.	Part Number	Description
1	43186	Shaft, Cutter Deck
2	48100-05	Bushing
3	45344	Lift Link
4	43180	Bushing
5	04050-01	Retaining Ring, 5/8" External "E"
6	45310	Bellcrank, Lift - Right Rear
7	*	Hex Head Bolt, 5/16-18 x 1
8	46384	Height Adjustment Lever (Includes grip)
9	48215	Grip, Lift Lever
10	44065	Rod, Cutter Deck Lock
11	48053	Spring, Deck Lift Index
12	04060-01	Roll Pin, 5/32 x 3/4
13	42887	Lock Rod Guide
14	*	Lockwasher, 5/16
15	*	Hex Nut, 5/16-18
16	48114-04	Grease Fitting
17	48492	Grip, Blade Clutch Lever
18	46385	Lever, Cutter Engagement (Includes grip)
19	04062-02	Hair Pin, 1/16" Dia.
20	04061-01	Cotter Pin, 3/32 x 1
21	44060	Rod, Cutter Engagement - Upper
22	04062-01	Hair Pin, 1/8" Dia.
23	*	Flat Washer, 1/2
24	45307	Bellcrank, Cutter Engagement
25	44061	Rod, Cutter Engagement - Lower
26	*	Hex Head Bolt, 1/4-20 x 3/4
27	42828	Strip, Height Adjustment
28	*	Hex Nut, 1/4-20
29	*	Lockwasher, 1/4
30	04041-08S	Flat Washer, 3/4 Special
31	04050-02	Retaining Ring, 3/4" External "E"
32	*	Hex Nut, 3/8-16
33	*	Lockwasher, 3/8
34	*	Flat Washer, 5/8
35	45313	Bellcrank, Lift - Left Rear
36	43167	Swivel Joint - RH
37	04004-12	Adjustment Stud
38	04040-10	Flat Washer, 5/8 ID
39	48540	Chain
40	*	Hex Head Bolt, 3/8-16 x 1-1/2
41	*	Hex Nut, 1/2-13
42	43168	Swivel Joint - LH
43	48546	Spring, Deck Lift
44	04012-03	Setscrew, 5/16-18 x 1/4
45	45312	Bellcrank, Lift - Left Front
45a	45311	Bellcrank, Lift - Right Front
46	04063-11	Key, 1/4 x 1/4 x 2-1/2

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

SHEET METAL COMPONENTS

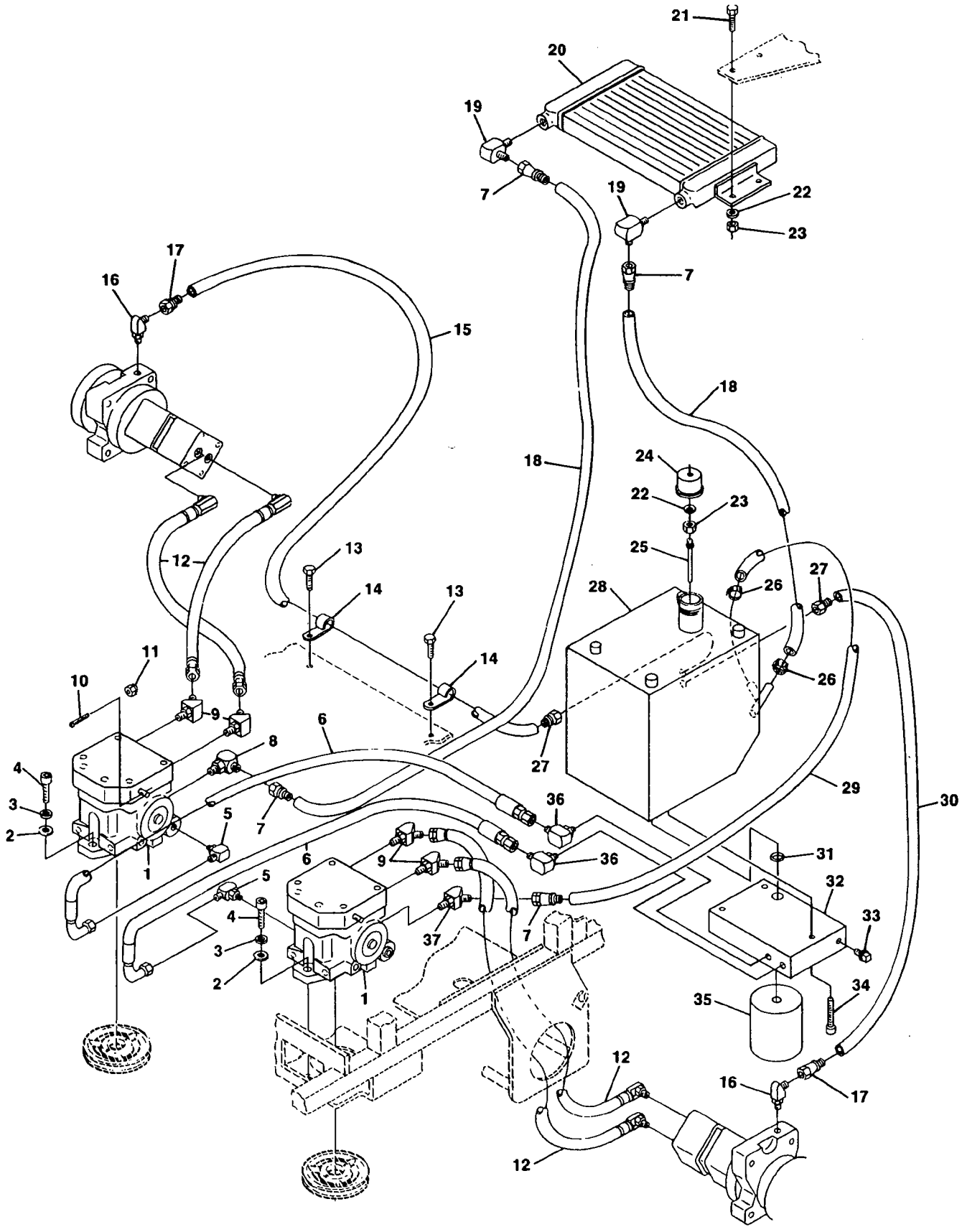


SHEET METAL COMPONENTS

Ref. No.	Part Number	Description
1	46386	Cutter Deck Support Frame (Includes
2	48100-08	Bushing
3	48114-04	Grease Fitting
4	46391	Main Frame (Includes bushings & fittings)
5	*	Hex Nut, 3/4-16 Elastic Stop
6	*	Flat Washer, 3/4
7	04062-02	Hair Pin, 1/16" Dia
8	*	Flat Washer, 3/8
9	44062	Rod, Foot Plate Latch
10	*	Hex Nut, 5/16-18
11	*	Lockwasher, 5/16
12	42764	Foot Plate
13	48547	Hinge
14	*	Carriage Bolt, 5/16-18 x 3/4
15	*	Screw, 5/16-18 x 3/4 Socket ButtonHead
16	42765	Kick Plate
17	*	Carriage Bolt, 5/16-18 x 1
18	42921	Seat Spacer Bar
19	*	Carriage Bolt, 5/16-18 x 1-1/2
20	45317	Fender - RH
21	42888	Neutral Lock Bar
22	42881	Neutral Lock Bracket
23	*	Hex Head Bolt, 5/16-18 x 3/4
24	48014-02	Arm Rest Kit (Includes items 25-29)
25	*	Setscrew, 3/8-16 x 3/4 Flat Point
26	48014-03	Arm Rest
27	48014-04	Mounting Bracket - RH
27a	48014-05	Mounting Bracket - LH
28	48014-07	Back Strap
29	*	Hex Head Bolt, 5/16-18 x 3/4
30	48592	Seat
31	42778	Seat Brace Support
32	45320	Seat Base
33	*	Hex Nut, 1/4-20 Elastic Stop
34	*	Lockwasher, 1/4
35	*	Flat Washer, 1/4
36	*	Hex Nut, 1/4-20
37	*	Hex Head Bolt, 1/4-20 x 1
38	*	Hex Head Bolt, 5/16-18 x 1-3/4
39	*	Flat Washer, 5/16
40	48538	Seat Spring
41	04041-11	Flat Washer, 13/32 x 1-1/2 x 7 ga.
42	42919	Oil Cooler Mounting Bracket - LH
42a	42920	Oil Cooler Mounting Bracket - RH
43	48566	Cable, Seat Stop
44	42886	Fender Bracket - LH
44a	42885	Fender Bracket - RH
45	*	Hex Head Bolt, 5/16-18 x 2-1/2
46	45318	Fender - Left
47	42901	LH Fender Extension
48	46392	Caster Wheel Assembly, Complete
49	04066-01	Quick Pin
50	45325	Caster Wheel Yoke
51	*	Hex Nut, 1/2-13 Elastic Stop
52	43041	Spacer
53	*	Hex Head Bolt, 1/2-13 x 6-1/2
54	48537	Wheel Assembly, Complete
55	48537-04	Bushing
56	48537-02	Tire Only
57	48537-03	Rim Only
58	48537-05	Sleeve
59	48537-06	Roller Bearing

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

HYDRAULIC COMPONENTS



HYDRAULIC COMPONENTS

Ref. No.	Part Number	Description
1	48597	Pump, Sundstrand
2	04041-04	Flat Washer (.500 x .937 x .105)
3	*	Lockwasher, 1/2
4	04015-03	Capscrew, Socket Hd., 5/16-18 x 3/4
5	48350-01	Elbow 90 deg., 1-1/16-12 JIC to 3/4-16 "O"
6	48622	Hose Assembly, Pump Suction
7	48353-04	Coupling, 7/8-14 SAE Flare to 5/8 ID Hose
8	48350-05	Elbow 90 deg., 7/8-14 JIC to 3/4-16 "O"
9	48485-01	Elbow 45 deg., 7/16-20 JIC to 3/4-16 "O"
10	*	Screw, Phillips Rd Hd, 1/4-20 x 2
11	*	Hex Nut, 1/4-20 Elastic Stop
12	48501	Hose Assembly, Pump to Motor
13	*	Hex Head Bolt, 1/4-20 x 3/4
14	48136-04	Hose Clamp
15	48482-09	Hose, 1/4" ID - 44" Long
16	48485-03	Elbow 45 deg., 7/16-20 JIC to 7/16-20 "O"
17	48353-02	Coupling, 7/8-14 SAE Flare to 1/4 ID Hose
18	48504-07	Hose, 5/8" ID - 18-1/2" Long
19	48489-03	Elbow 90 deg., 7/8-14 JIC to 1/2 NPT
20	48620	Oil Cooler
21	*	Hex Head Bolt, 5/16-18 x 3/4
22	*	Lockwasher, 5/16
23	*	Hex Nut, 5/16-18
24	48630	Cap, Oil Reservoir
25	43198	Dip Stick
26	48030-09	Hose Clamp
27	48352-02	Coupling, 1/4 NPT to 1/4 ID Hose
28	45309	Oil Reservoir
29	48504-05	Hose, 5/8" ID - 16" Long
30	48482-04	Hose, 1/4" ID - 10" Long
31	48603-01	"O" Ring, 1/8 x 1 ID
32	48599	Oil Manifold
33	48363	Pipe Plug, 1/2 NPT
34	04015-04	Capscrew, Socket Hd., 3/8-16 x 2
35	48606	Oil Filter
36	48350-08	Elbow 90 deg.
37	48485-04	Elbow 45 deg., 7/8-14 JIC to 3/4-16 "O"

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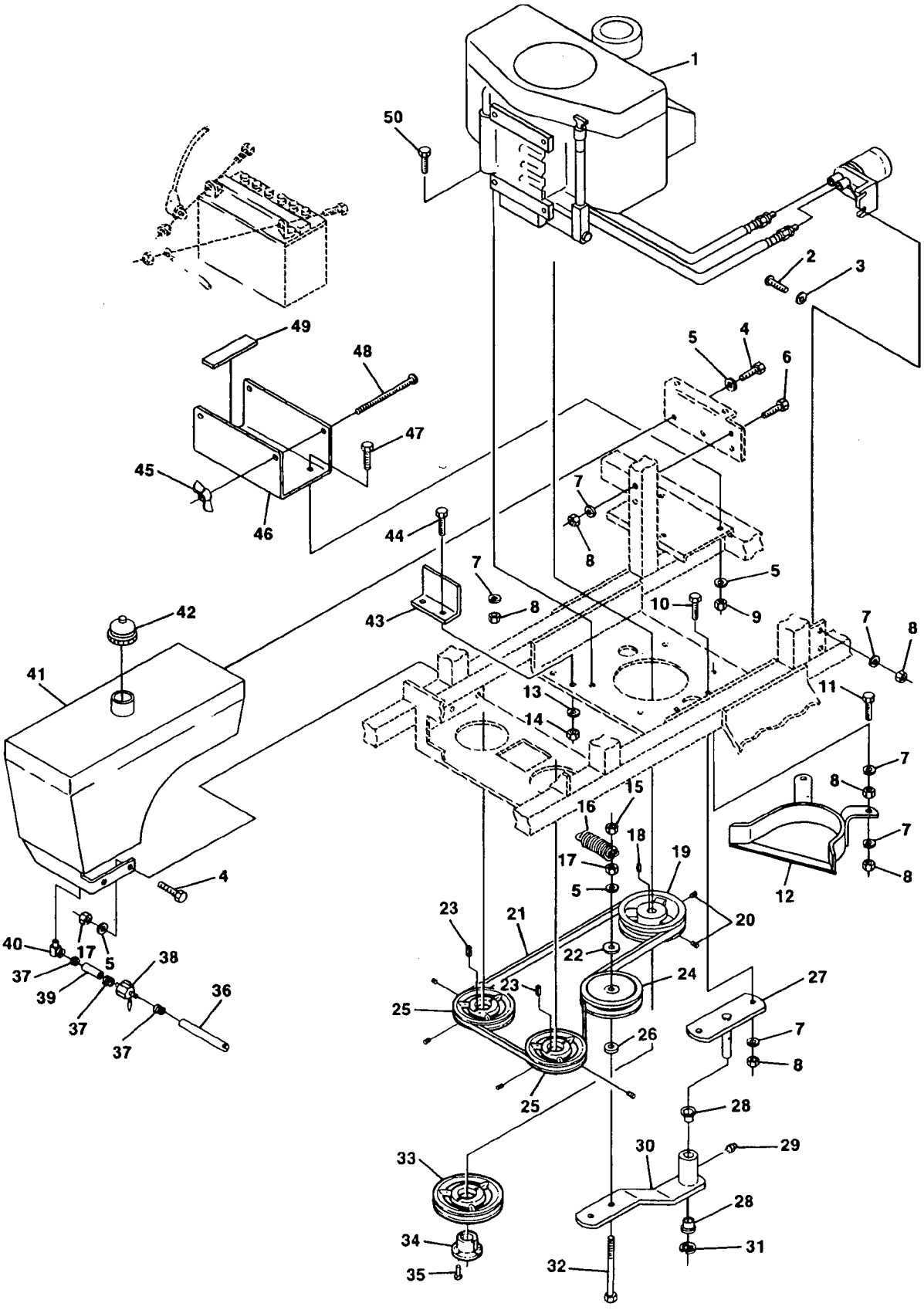
TRACTION DRIVE COMPONENTS

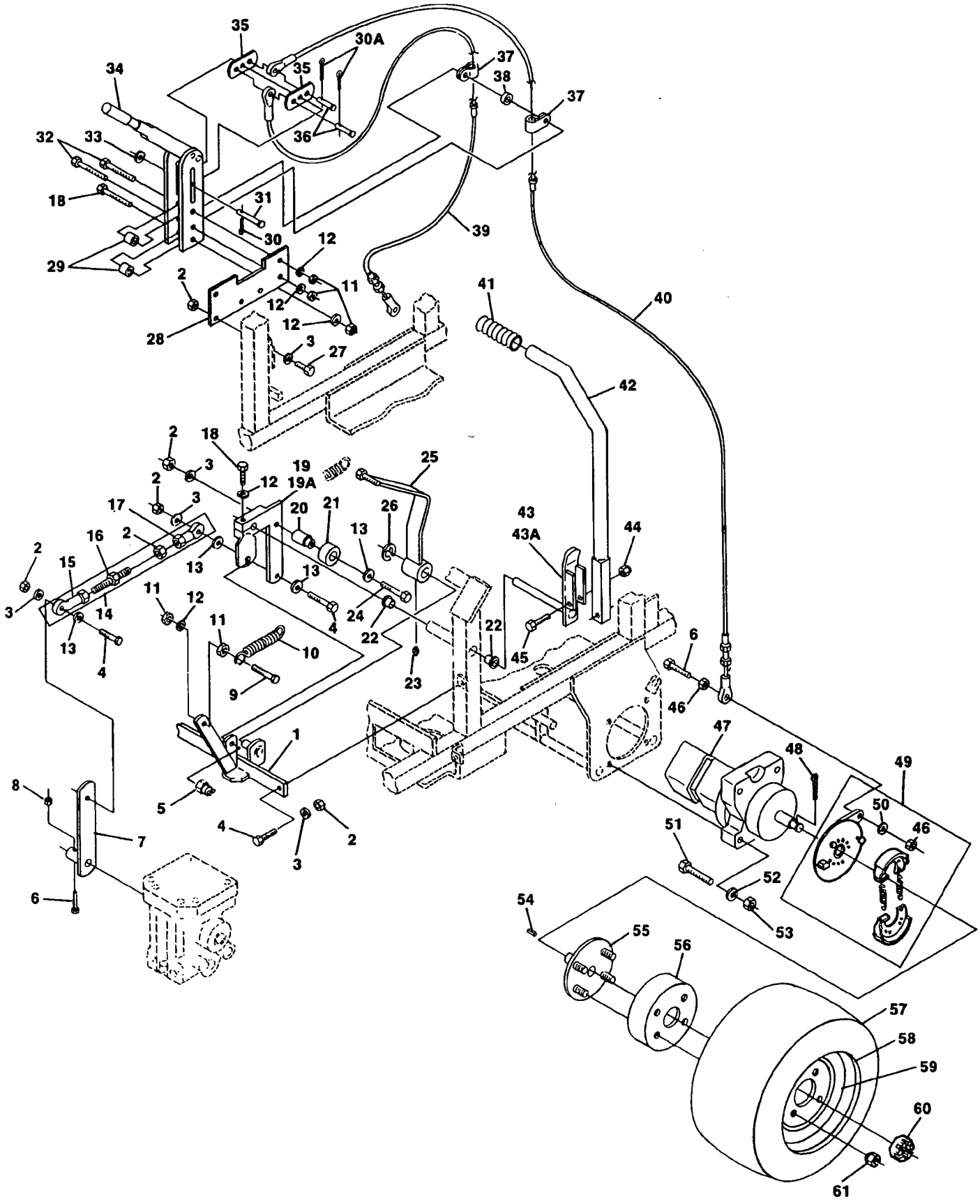


TRACTION DRIVE COMPONENTS

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48558	Engine, 20 HP Kohler	26	*	Flat Washer, 3/8 x 12 ga.
2	*	Carriage Bolt, 5/16-18 x 1	27	45212	Idler Pivot
3	*	Flat Washer, 5/16	28	48100-05	Bushing
4	*	Hex Head Bolt, 3/8-16 x 1	29	48114-04	Grease Fitting
5	*	Lockwasher, 3/8	30	46340	Idler Arm (Includes bushings & grease ftg.)
6	*	Hex Head Bolt, 5/16-18 x 2-3/4	31	04050-02	Retaining Ring, 3/4 External "E"
7	*	Lockwasher, 5/16	32	04001-81	Hex Head Bolt, 3/8-16 x 3-1/2 Full Thread
8	*	Hex Nut, 5/16-18	33	48168-01	Pulley, Engine - Cutter Drive
9	*	Center Locknut, 3/8-16	34	48168-03	Hub, Pulley
10	*	Hex Head Bolt, 5/16-18 x 1	35	*	Hex Head Bolt, 1/4-20 x 1-3/8
11	*	Hex Head Bolt, 5/16-18 x 2	36	48058-10	Fuel Hose, 10" Long
12	45352	Belt Guide	37	48059-01	Clamp, Fuel Hose
13	*	Lockwasher, 1/4	38	48568	Fuel Shut off Valve
14	*	Hex Nut, 1/4-20	39	48058-09	Fuel Hose, 1-1/4" Long
15	*	Elastic Stop Nut, 3/8-16	40	48486-01	Elbow, 90 deg. Male 1/4 NPT to 1/4 Hose
16	48560	Spring, Idler Arm	41	46393	Fuel Tank (Includes cap & bushing)
17	*	Hex Nut, 3/8-16	42	48569	Fuel Tank Cap
18	04063-11	Key, 1/4 x 1/4 x 2-1/2	43	42918	Heat Deflector
19	48593	Pulley, Engine - Pump Drive	44	*	Hex Head Bolt, 1/4-20 x 3/4
20	04012-04	Setscrew, 5/16-18 x 3/8 Hex Socket Head	45	04022-01	Elastic Stop Wingnut, 1/4-20
21	48472	Belt, Pump Drive	46	42802	Plate, Battery Box
22	*	Flat, Washer, 3/8	47	*	Hex Head Bolt, 3/8-16 x 3/4
23	04063-12	Key, Woodruff #61	48	*	Carriage Bolt, 1/4-20 x 6
24	48473	Pulley, Idler Pump Drive	49	48333	Pad, Battery Support
25	48581	Pulley, Pump Shaft	50	*	Hex Head Bolt, 5/16-18 x 1-1/2

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

BRAKE AND STEERING CONTROLS



BRAKE AND STEERING CONTROLS

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	45319	Neutral Control	31	48574-03	Pin
2	*	Hex Nut, 3/8-16	32	*	Hex Head Bolt, 5/16-18 x 2
3	*	Lockwasher, 3/8	33	48574-04	Washer
4	*	Hex Head Bolt, 3/8-16 x 1-1/4	34	48574	Brake Lever Assembly, Complete
5	48021	Switch, Neutral	35	48574-05	Equalizer
6	*	Hex Head Bolt, 1/4-20 x 1-1/4	36	48574-06	Pin
7	45345	Lever, Pump Control	37	48574-07	Clamp
8	*	Hex Nut, 1/4-20 Elastic Stop	38	48574-08	Spacer
9	*	Hex Head Bolt, 5/16-18 x 1-1/4	39	48548	Brake Cable - RH
10	48051	Spring, Neutral	40	48549	Brake Cable - LH
11	*	Hex Nut, 5/16-18	41	48093	Grip, Control Handle
12	*	Lockwasher, 5/16	42	46390	Control Handle (Includes grip)
13	*	Flat Washer, 3/8	43	45348	Control Lever - RH
14	46388	Turnbuckle Assembly	43a	45349	Control Lever - LH
15	48544	Ball Joint, LH Thread (gold)	44	*	Nex Nut, 5/16-18 Elastic Stop
16	48590	Link, Turnbuckle	45	*	Hex Head Bolt, 5/16-18 x 1-1/2
17	48464	Ball Joint, RH Thread (silver)	46	*	Hex Nut, 1/4-20
18	*	Hex Head Bolt, 5/16-18 x 1-3/4	47	48439	Motor, White
19	45346	Lever, Pump Transfer - RH	48	*	Cotter Pin, 5/32 x 1-1/2
19a	45347	Lever, Pump Transfer - LH	49	48461	Parking Brake Assembly
20	43178	Spacer, Neutral Bearing	50	*	Lockwasher, 1/4
21	48224	Bearing, Neutral Return	51	*	Hex Head Bolt, 1/2-13 x 2-1/2
22	48100-06	Bushing	52	*	Lockwasher, 1/2
23	48114-04	Grease Fitting	53	*	Hex Nut, 1/2-13
24	*	Hex Head Bolt, 3/8-16 x 2-1/4	54	04063-16	Key, 5/16 x 5/16 x 15/16
25	46337	Neutral Cam - RH (Includes grease ftg.)	55	46332	Wheel Hub Assembly
26	04050-01	Retaining Ring, 5/8 External "E"	56	48513	Brake Drum
27	*	Hex Head Bolt, 3/8-16 x 1	57	48554	Wheel Assembly
28	42884	Brake Extension Bar	58	48554-01	Tire Only
29	48574-01	Spacer	59	48416-04	Rim Only
30	48574-09	Cotter Pin	60	04027-03	Hex Castle Nut
30A	48574-02	Cotter Pin	61	48004-06	Nut and Bolt

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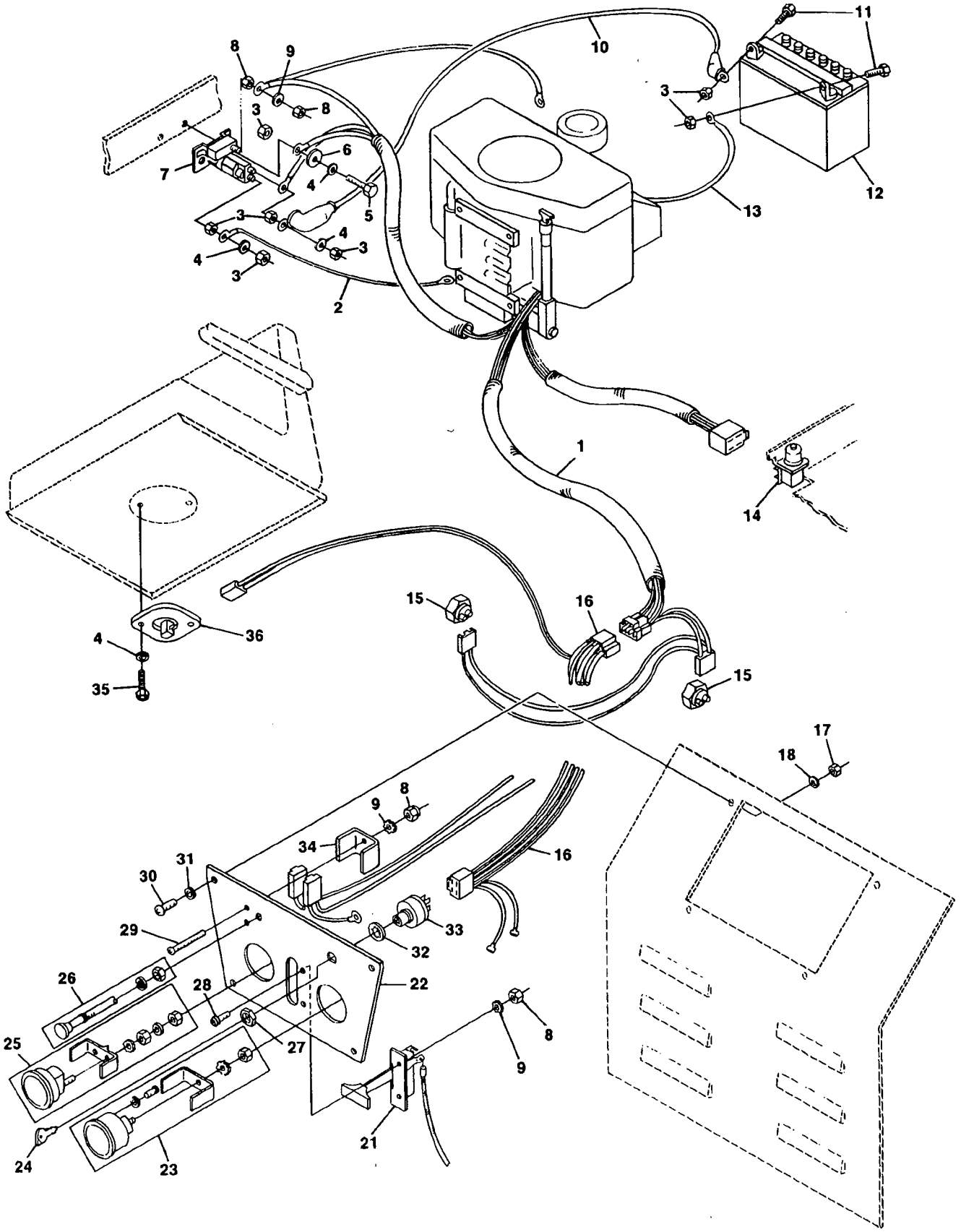
INSTRUMENT PANEL AND ELECTRICAL COMPONENTS



INSTRUMENT PANEL AND ELECTRICAL COMPONENTS

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48518	Wire Harness	19	+	Part Removed From Illustration
2	48029-09	Battery Cable - 9" (Red)	20	+	Part Removed From Illustration
3	*	Hex Nut, 1/4-20	21	48519	Throttle Control
4	*	Lockwasher, 1/4	22	42762	Instrument Panel
5	*	Hex Head Bolt, 1/4-20 x 3/4	23	48023	Hourmeter (Includes hardware)
6	*	Flat Washer, 1/4	24	48017-02	Ignition Key
7	48016	Solenoid	25	48022	Ammeter (Includes hardware)
8	*	Hex Nut, #10-32	26	48091	Choke Control
9	*	Lockwasher, #10 External Tooth	27	48017-04	Hex Nut, 5/8-11
10	48029-02	Battery Cable - 30-3/4" (Red)	28	*	Screw, Phillips Washer Hd, #10-32 x 1/2
11	*	Hex Head Bolt, 1/4-20 x 1/2	29	*	Screw, Phillips Washer Hd, #10-32 x 1-1/2
12	48015	Battery	30	*	Screw, Button Head Socket, 5/16-18 x 1/2
13	48029-01	Battery Cable - 13-3/4" (Black)	31	*	Flat Washer, 5/16
14	48522	Switch, Cutter Deck Engage	32	48017-03	Lockwasher, 5/8 Internal Tooth
15	48231	Switch, Neutral (N/O)	33	48017	Switch, Ignition
16	48595	Wire Harness - Lower	34	42413	Bracket, Fuse Holder
17	*	Hex Nut, 5/16-18	35	*	Screw, Phillips Round Head, 1/4-20 x 1/2
18	*	Lockwasher, 5/16	36	48591	Switch, Seat

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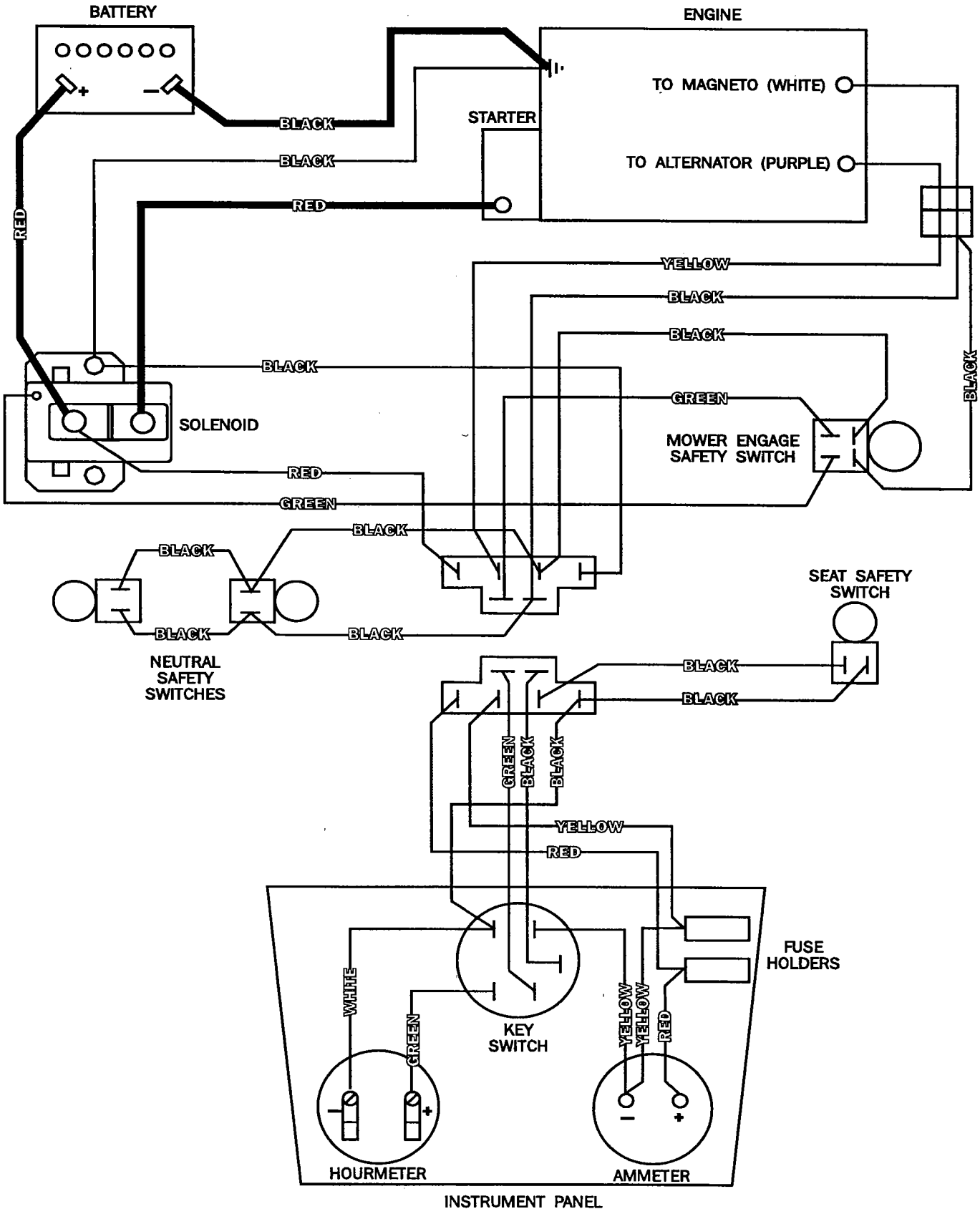
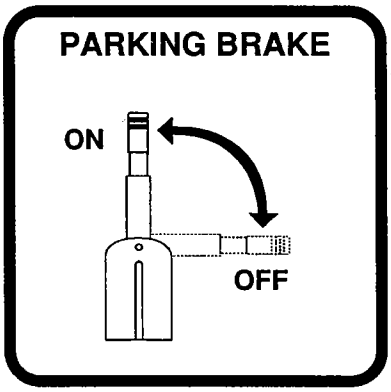
WIRING DIAGRAM



REPLACEMENT DECALS

48520

48555



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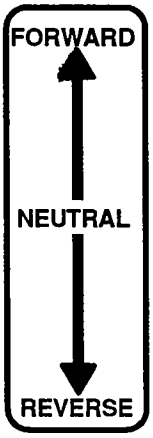

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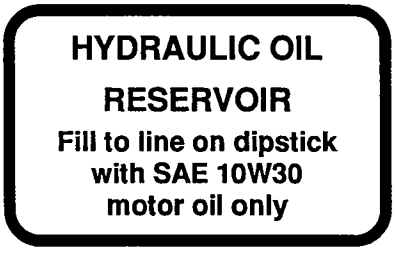

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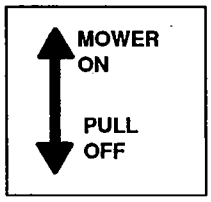


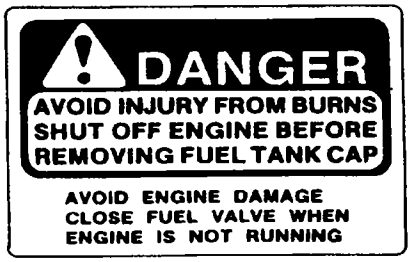
48382

48071

DANGER
ROTATING BLADES AND BELTS
• KEEP HANDS, FEET & CLOTHING CLEAR
• KEEP ALL GUARDS IN PLACE
• SHUT OFF ENGINE & DISENGAGE BLADE CLUTCH BEFORE SERVICING
• CLEAR AREA OF DEBRIS BEFORE MOWING
• USE CAUTION IN DIRECTING DISCHARGE
• KEEP BYSTANDERS, CHILDREN & PETS AWAY
• READ INSTRUCTION MANUAL BEFORE OPERATING

48073

48319



48401

WARNING

If incorrectly used, this machine can cause severe injury. Those who use and maintain the machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust or service the machine.

LIMITED WARRANTY-COMMERCIAL EQUIPMENT

Any part of the Scag commercial mower manufactured by Scag and found, in the reasonable judgment of Scag, to be defective in material or workmanship, will be repaired or replaced by an Authorized Scag Service Dealer without charge for parts and labor.

The Scag mower including any defective part must be returned to an Authorized Scag Service Dealer within the warranty period. The expense of delivering the mower to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. Scag's responsibility in respect to claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Scag mower. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an Authorized Scag Service Dealer.

This warranty is limited to one year from the date of original retail purchase for any Scag mower that is used for commercial purposes, or any other income-producing purpose (90 days for rental use). Traction drive system will be warranted for two full years from date of original retail purchase against defects in material or workmanship excluding hoses, lines and drive belts. Belts and tires are warrantied for 90 days against defects in workmanship or materials.

This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Technical Manual. The warranty does not apply to any damage to the mower that is the result of improper maintenance, or to any mower or parts that have not been assembled or installed as specified in the Technical Manual.

The warranty does not cover any mower that has been altered or modified. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the reasonable judgment of Scag, are either incompatible with the Scag mower or adversely affect its operation, performance or durability. This warranty does not cover engines and electric starters, which are warranted separately by their manufacturer.

Scag Power Equipment reserves the right to change or improve the design of any mower without assuming any obligation to modify any mower previously manufactured.

All other implied warranties are limited in duration to the one (1) year warranty period or ninety (90) days for mowers used for rental purpose. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the appropriate one-year or ninety day warranty period. Scag's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective parts and Scag does not assume or authorize anyone to assume for them any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Scag assumes no responsibility for incidental, consequential or other damages including, but not limited to, expense for gasoline, expense of delivering the mower to an Authorized Scag Service Dealer and expense of returning it back to the owner, mechanic's travel time, telephone or telegram charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the mower, loss of time or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages. So the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

PLEASE BE CAREFUL

1. Keep all shields in place, especially grass discharge guard.
2. Stop machine and remove spark plug wire to adjust or service.
3. When mechanism becomes clogged, stop engine before cleaning.
4. Keep hands, feet and clothing away from power-driven parts.
5. Keep off implement unless seat or platform is provided.
6. Keep others off of the tractor (only one person at a time).

REMEMBER - YOUR MOWER IS ONLY AS SAFE AS THE OPERATOR!

FAILURE TO FOLLOW CAUTIOUS OPERATING PRACTICES MAY RESULT IN SERIOUS BODILY INJURY. BESIDES, WE WOULD LIKE YOU TO CONTINUE TO ENJOY AND PROFIT BY USING OUR PRODUCTS.

OWNER REFERENCE

TRACTOR MODEL_____

TRACTOR SERIAL NUMBER_____

MOWER MODEL_____

MOWER SERIAL NUMBER_____